Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Biennial Regulatory Review – Amendment of	)	WT Docket No. 03-264
Parts 1, 22, 24, 27, and 90 to Streamline and	)	
Harmonize Various Rules Affecting Wireless	)	
Radio Services	)	

REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: July 22, 2005 **Released:** August 9, 2005

By the Commission: Commissioner Copps approving in part, dissenting in part; and issuing a statement.

Comment Date: [60 days after publication in the Federal Register]
Reply Comment Date: [90 days after publication in the Federal Register]

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I. INTRODUCTION

1. On January 7, 2004, the Commission released a Notice of Proposed Rulemaking,[1] which commenced a proceeding to streamline and harmonize licensing provisions in the wireless radio services (WRS)[2] that were identified in part during the Commission's 2000 and 2002 biennial regulatory reviews pursuant to Section 11 of the Communications Act of 1934, as amended ("Communications Act" or "Act").[3] The Commission proposed various amendments to Parts 1, 22, 24, 27, and 90 of the rules to modify or eliminate provisions that treat licensees differently and/or have become outdated as a result of technological change, supervening changes to related Commission rules, and/or increased competition within WRS. We believe streamlining and harmonizing these rules will clarify spectrum rights and obligations and optimize flexibility for WRS licensees, fulfill our mandate under Section 11 of the Communications Act, and support efforts to maximize the public benefits derived from the use of the radio spectrum. Accordingly, in this *Report and Order*, we:

- Modify our rules to classify a deletion of a frequency and/or transmitter site from a multi-site authorization under Part 90 as a minor modification.
- Retain the references to ERP and EIRP in our rules.
- Eliminate the transmitter-specific posting requirement of Part 22 licensees.
- Eliminate Part 24 transmitter output power limits.
- Retain the frequency coordination requirement for incumbent licensees operating on 800 MHz General Category frequencies and for site-based 800 MHz General Category applications filed after 800 MHz rebanding.

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[1] *See* In the Matter of Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services, WT Docket No. 03-264, *Notice of Proposed Rulemaking*, 19 FCC Rcd 708 (2004) (*Notice*).

[2] 47 C.F.R. § 1.907. WRS is defined in the Commission's rules as "[a]ll radio services authorized in parts 13, 20, 22, 24, 26, 27, 74, 80, 87, 90, 95, 97 and 101 . . . whether commercial or private in nature." *Id.*

[3] 47 U.S.C. § 161.

- Conform the Emission Mask G to a modulation-independent mask that places no limitation on the spectral power density profile within the maximum authorized bandwidth.

- Eliminate Section 90.607(a) of our rules requiring the filing of certain outdated supplemental information.

- Eliminate the loading requirement and references to the "waiting list" in Section 90.631(d) of our rules, and eliminate Section 90.631(i) which is no longer necessary because the 900 MHz specialized mobile radio (SMR) renewal period it references has long passed.

- Modify Section 90.635 of our rules to remove the distinction between urban and suburban sites when setting the maximum power and antenna heights limits for conventional 800 MHz and 900 MHz systems. Eliminate the power limitations on systems with operational radii of less than 32 kilometers.

- Eliminate Section 90.653 of our rules which specifies no limitation on the number of system authorizations to operate within a given geographic area as redundant.

- Eliminate Section 90.658 of our rules which provides that site-based licensees of trunked SMR systems must provide loading data in order to either acquire additional channels or renew their authorizations.

- Modify Section 90.693 of our rules to eliminate the necessity of incumbent 800 MHz SMR licensees filing notifications of minor modifications in certain circumstances.

- Eliminate Section 90.737 of our rules which requires the filing of supplemental progress reports for 220 MHz Phase I licensees.

In the *Further Notice of Proposed Rulemaking,* we seek comment on whether to:

- Implement a spectral density model to our radiated power rules.

- Further increase our radiated power limits.

- Specify radiated power as an average rather than peak.

- Apply the radiated power rule changes to other services.

II. BACKGROUND

2. In the *2000 Biennial Review Report*[4] and *2002 Biennial Review Report,*[5] the Commission

[4] *See* The 2000 Biennial Regulatory Review, CC Docket No. 00-175, *Report*, 16 FCC Rcd 1207 (2001) (*2000 Biennial Review Report*); *see also* Biennial Regulatory Review 2000, *Updated Staff Report* (rel. concurrently with *2000 Biennial Review Report*) (*2000 BR Staff Report*); *id.* at Appendix IV: Rule Part Analysis (*2000 BR Staff Report Appendix*).

[5] *See* The 2002 Biennial Regulatory Review, GC Docket No. 02-390, *Report*, 18 FCC Rcd 4726 (2003) (*2002 Biennial Review Report*); *see also* 2002 Biennial Regulatory Review, WT Docket No. 02-310, *Staff Report of the Wireless Telecommunications Bureau* (rel. concurrently with *2002 Biennial Review Report*) (*2002 BR Staff Report*); *id.* at Appendix IV: Rule Part Analysis (*2002 BR Staff Report Appendix*).

supported proposals to streamline, harmonize, and update a number of regulations after reviewing various WRS rule parts pursuant to Section 11 of the Act.[6] Section 11 of the Act requires the Commission to review biennially its regulations that are applicable to providers of telecommunications service in order to determine whether any rule is "no longer necessary in the public interest as the result of meaningful economic competition."[7] Following such reviews, the Commission is required to modify or repeal any such regulations that are no longer in the public interest.[8] Since the release of the biennial review reports, the Commission has considered modifying or repealing certain regulations by issuing notices of proposed rulemakings as appropriate. The *Notice* addressed additional proposals, identified in the 2000 and/or 2002 biennial review reports, to streamline and harmonize WRS rules that may no longer be necessary in the public interest pursuant to Section 11 of the Act.

3. To a great extent, technological changes and/or successive changes to various Commission licensing rules have made it appropriate to review whether many of these rules are obsolete and no longer in the public interest. Accordingly, the *Notice* sought comment on streamlining and harmonizing these rules if they no longer serve the public interest in their current form notwithstanding any findings regarding the level of competition among existing services. In its *2002 Biennial Review Report,* the Commission clarified the scope and standard of review for future proceedings conducted pursuant to Section 11.[9] In so doing, the Commission acknowledged that it has broad discretion to review the continued need for any rule even in the absence of a congressional mandate such as Section 11.[10] Accordingly, the *Notice* sought comment pursuant to the Commission's broad authority to consider any proposed modifications to, or elimination of, these existing rules under the Commission's general public interest standard. The Commission also provided notice of, and invited the public to review, various administrative corrections that it intended to make at the conclusion of this proceeding to update and/or clarify certain WRS rules. Although it was not necessary pursuant to the Administrative Procedure Act to seek comment on all of the proposed rule changes in the *Notice*,[11] the Commission did so to facilitate administrative efficiency. Thirteen parties filed comments.[12] Six parties filed reply comments.[13]

III. DISCUSSION

4. In the sections below, we address the comments on and adopt many of the various proposed amendments to provisions in Parts 1, 22, 24, 27, and 90 of the rules. We sought comment

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[6] 47 U.S.C. § 161.

[7] *See 2002 BR Staff Report* at 1, *citing* 47 U.S.C. § 161.

[8] *Id.* at 2.

[9] *See 2002 Biennial Review Report* at ¶ 27.

[10] *Id.*

[11] *See* 5 U.S.C. § 553(b).

[12] *See* Comments of American Automobile Association (AAA), American Mobile Telecommunications Association, Inc. (AMTA); American Petroleum Institute (API); Cellular Telecommunications & Internet Association (CTIA); Cingular Wireless, LLC (Cingular); Ericsson, Inc. (Ericsson); Lucent Technologies, Inc. (Lucent); Motorola, Inc. (Motorola); National Association of Manufacturers and MRFAC, Inc. (NAM/MRFAC); Nextel Communications, Inc. (Nextel); PCIA, the Wireless Infrastructure Association (PCIA); Powerwave Technologies, Inc. (Powerwave); and QUALCOMM Incorporated (Qualcomm).

[13] *See* Reply Comments of American Mobile Telecommunications Association, Inc. (AMTA); Ericsson, Inc. (Ericsson); Industrial Telecommunications Association, Inc. (ITA); Motorola, Inc. (Motorola); Powerwave Technologies, Inc. (Powerwave); and QUALCOMM Incorporated (Qualcomm).

generally whether these provisions should be (1) streamlined as a result of competitive, technological, or subsequent administrative rule changes and/or (2) harmonized because they treat similarly situated services differently. Although many of the proposals we adopt are technical in nature and/or limited in application to a particular WRS, they nonetheless are consistent with our goal to harmonize rules and streamline the licensing obligations for all WRS licensees by eliminating unnecessary rules, as appropriate.

A. Classification of Part 90 Frequency and/or Transmitter Site Deletions as Minor Modifications under Part 1

5. *Background.* Section 1.929(c)(4) of the Commission's rules requires that certain requests for modification to a site-specific Part 90 authorization, including changes to the frequencies or locations of base stations, are considered major modifications to the license which require prior Commission approval.[14] Pursuant to Section 90.135(b) of the rules, a site-specific Part 90 licensee that makes a modification request listed in Section 1.929(c)(4) must submit its request to the applicable frequency coordinator, unless the request falls within one of the specific exemptions listed in Section 90.175 of the rules.[15]

6. The Commission tentatively concluded that a request to delete a frequency or a site from a multi-site authorization under Part 90 should be considered a minor modification that requires neither frequency coordination nor the Commission's prior approval and consequently proposed to amend its rules such that these actions would be treated as minor modifications under Part 1 of the Commission's rules.[16] The Commission invited comment on its tentative conclusion and also sought comment on whether there remains any need for licensees to notify the applicable frequency coordinator of any given deletion, if the rules are modified as proposed.

7. *Discussion.* We adopt our tentative conclusion which was unanimously supported by the commenting parties.[17] We conclude that requiring frequency coordination for a Part 90 frequency or site deletion request is unnecessary given that the Universal Licensing System (ULS) now provides frequency coordinators with immediate access to frequency and site information. We agree with AAA's assessment that it would be inconsistent to require coordination for a deletion of a site or a frequency when it is not required for a request to cancel an entire authorization.[18] API asserts that requiring frequency coordination in this instance serves only to place an unnecessary administrative and financial burden upon the licensee, with no corresponding public or private benefit.[19]

8. We also conclude that no further direct notification of frequency coordinators by licensees is necessary. Although most commenters thought that further notification to the applicable

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[14] 47 C.F.R. § 1.929(c)(4). Moreover, any change not specifically listed as major in our rules is considered minor.

[15] *Id.* 47 C.F.R. §§ 90.135(b), 90.175.

[16] *See* 47 C.F.R. §§ 1.929(k), 1.947(b) (requiring licensees to notify the Commission within 30 days of implementing any such minor modifications).

[17] *See, e.g.*, AAA Comments, API Comments, CTIA Comments, NAM/MRFAC Comments, Nextel Comments, and PCIA Comments. AMTA had recommended this change in its earlier reply comments in the 2002 biennial review proceeding and still endorses it. *See* AMTA Reply Comments filed in WT Docket No. 02-310 on Nov. 4, 2002 at 7-8. AMTA Reply Comments at 1.

[18] *See* AAA Comments at 2-3.

[19] API Comments at 4, *citing* Comments of API filed in WT Docket No. 02-310 (Oct. 18, 2002) at ¶ 23.

frequency coordinator was unnecessary, PCIA disagreed, arguing that it is still desirable for frequency advisory committees ("FACs") to be aware of frequency deletions, and therefore potential spectrum availability.[20] As an alternative, PCIA recommends that the Commission develop an electronic notification process where frequency deletions, filed by licensees directly with the FCC, will generate within ULS an automatic update notification to FACs. PCIA claims this would provide the benefits of FACs being aware of spectrum availabilities, but minimize the costs that might otherwise be incurred.[21] We agree with NAM/MRFAC that licensees need provide no special notification to coordinators of a frequency/site deletion because licensees are generally required to file notifications of minor modifications with the Commission within 30 days of the change pursuant to Sections 1.929 and 1.947, and that coordinators routinely obtain such information via regular downloads from the ULS.[22] We also clarify that a deleted frequency and/or transmitter location becomes available for the filing of applications, where applicable, when the ULS database is updated to reflect the grant of the modification application seeking deletion of a frequency and/or transmitter location.

B. Effective Radiated Power / Equivalent Isotropically Radiated Power

9. *Background.* In its comments in the 2000 biennial review proceeding, the Wireless Communications Division of the Telecommunications Industry Association (TIA) argued that designating FCC power limits[23] in terms of ERP in the Cellular Radiotelephone Service (cellular) rules and EIRP in the broadband Personal Communications Service (PCS) rules is "confusing to [its members'] customers since it appears that a dual mode phone [transmits] at different power levels at different frequencies."[24] TIA argued that having two different types of power limits in the same device could be confusing to those who do not possess a scientific or engineering background.[25] Although it recommended in the *2000 Biennial Review Report* that a rulemaking proposal be initiated to consider using EIRP exclusively in Commission rules,[26] the Commission tentatively concluded that the costs of implementation and potential for greater confusion that would likely be associated with making a wholesale conversion from ERP

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[20] PCIA Comments at 2.

[21] *Id.* at 2-3.

[22] NAM/MRFAC Comments at 3.

[23] Power limits in the Commission's rules are specified in terms of Effective Radiated Power (ERP) for stations transmitting radio waves having frequencies lower than 1000 MHz (*e.g.* Part 22 cellular stations), and in terms of Equivalent Isotropically Radiated Power (EIRP) for stations transmitting radio waves having frequencies higher than 1000 MHz (*e.g.* part 24 broadband PCS stations). Traditionally, radio engineers have used ERP for land mobile transmitting stations and EIRP for microwave fixed transmitting stations. This is because antenna manufacturers have historically measured the gain of antennas used in the mobile service on testing ranges, using a half-wave dipole antenna as a reference, while manufacturers of fixed microwave antennas have specified gain with reference to a theoretical isotropic radiator. Within the last ten years, however, the use of microwave frequency ranges for commercial mobile services has dramatically increased, particularly with broadband PCS. Because the broadband PCS frequency allocations are above 1000 MHz, the Commission expressed power limits in the PCS rules in terms of EIRP rather than ERP, despite the fact that many PCS licensees have chosen to provide mobile service more so than fixed service.

[24] Comments of the Wireless Communications Division of the Telecommunications Industry Association filed in CC Docket No. 00-175 on October 10, 2000 (TIA Comments) at 5.

[25] *Id.*

[26] *2000 Biennial Review Report*, 16 FCC Rcd at 1231 ¶ 69. We note that the staff actually recommended the change without an explanation, but that the Commission merely recommended consideration of TIA's proposal. *Compare id. with 2000 BR Staff Report Appendix* at 69.

limits to EIRP limits outweigh the potential benefits to those licensees who do not possess the scientific or engineering expertise to distinguish between the two standards and sought comment on this tentative conclusion. The Commission urged parties who disagreed with this tentative conclusion to provide specific examples of how the benefits of such a harmonization outweigh the inevitable costs and potentially greater confusion among the public from such a conversion in the rules.

10. *Discussion.* We decide to leave unchanged the references to ERP and EIRP in our rules and adopt our tentative conclusion. We agree with AAA and Nextel that the costs associated with implementing the TIA request, together with the potential for greater uncertainty, outweigh its possible benefits.[27] In addition, AAA contends that restating all ERP limits as EIRP limits could cause some entities to mistakenly conclude that the Commission has increased the permitted power associated with the channels.[28] We disagree with Cingular and TIA that confusion would be removed by converting all of our power limit references to EIRP.[29] On the contrary, we believe that such a change in the rules would require extensive modifications, not only for the Commission (*e.g.*, reprogramming the Universal Licensing System (ULS), amending international agreements negotiated in terms of ERP, *etc.*), but also for licensees, frequency coordinators, manufacturers, and others in the wireless industry. Moreover, because an EIRP limit is always a larger number than the equivalent ERP limit, we believe that restating all ERP limits as EIRP limits could likely cause some entities (*e.g.*, licensees, frequency coordinators, *etc.*) to mistakenly think that the Commission has increased the permitted power.

C. Part 22 Transmitter Identification

11. *Background.* Section 22.303 of the Commission's rules provides, *inter alia*, that "[t]he station call sign must be clearly and legibly marked on or near every transmitting facility, other than mobile transmitters, of the station."[30] In the 2002 biennial review proceeding, CTIA and the Rural Cellular Association (RCA) recommended that the Commission eliminate this requirement in the interest of commercial wireless regulatory parity, since wireless services regulated under other parts of the Commission's rules are not subject to a comparable obligation to post call sign information on each transmitter.[31] The Commission agreed with CTIA and RCA that these rules should be harmonized and tentatively concluded to delete the last sentence of Section 22.303, thereby eliminating the transmitter-specific posting requirement for cellular and other Part 22 licensees. The Commission requested comment on this proposal, including whether the absence of call sign information on transmitting facilities associated with other WRS that are not subject to Part 22 has proved problematic to the public or other carriers in any way.[32]

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[27] AAA Comments at 3. *See also* Nextel Comments at 3.

[28] AAA Comments at 3.

[29] *See* Cingular Comments at 2.

[30] 47 C.F.R. § 22.303.

[31] *See* Petition for Rulemaking of the Cellular Telecommunications & Internet Association, WT Docket No. 02-310, filed July 25, 2002 (CTIA Petition) at 21.

[32] In addition, Section 22.303 references Section 22.163 of the rules. In our ULS proceeding, we consolidated this rule section into Section 1.929. *See* Biennial Regulatory Review – Amendment of Parts 0, 1, 13, 22, 24, 27, 80, 87, 90, 95, 97 and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, *Report and Order*, 13 FCC Rcd 21027 (1998) (*ULS R&O*); *Memorandum Opinion and Order on Reconsideration*, 14 FCC Rcd 11145 (1998). In order to update Section 22.303 to reflect the correct cross-reference, the Commission proposed to replace the reference to Section 22.163 in the first sentence of the section with a reference to Section 1.929.

12. *Discussion.* We eliminate the transmitter-specific posting requirement of Part 22 licensees and thereby adopt our tentative proposal. All commenting parties, including AMTA, CTIA and Cingular, support the proposal.[33] AMTA asserts that the requirement for posting a call sign at each transmitter location is a vestige of a time when systems typically were licensed on a site-specific and frequency-specific basis wherein each location had a unique call sign[34] and claims that now, a significant number of wireless systems, including Part 22 systems, are licensed on a geographic basis with a single call sign covering the entire authorization.[35] AMTA contends that individual transmitters typically may be located anywhere within the geographic area with no requirement for individual operating authority and may transmit on any or all of the authorized channels.[36] Finally, Cingular states that "[n]ot having posted call sign information has not proved problematic for PCS and other services governed by other parts of the rules. The proposed rule change would harmonize the cellular and PCS rules and eliminate an unnecessary obligation on licensees."[37] We agree with the commenters' analysis.

D. Part 24 Power and Antenna Height Limits

13. *Background.* Section 24.232 of the Commission's rules contains, *inter alia*, limits on broadband PCS base station equivalent isotropically radiated power and broadband PCS base station transmitter output power.[38] For the last ten years, the rule limited "base station power" to 1640 watts peak EIRP for antenna heights up to 300 meters height above average terrain (HAAT),[39] and also limited transmitter output power to 100 watts. When the Commission increased the PCS EIRP limit from 100 watts to 1640 watts in 1994, it concurrently adopted the 100 watt peak transmitter power output limit to ensure that broadband PCS licensees utilizing the increased EIRP would do so by employing high-gain, directional antennas, rather than high power transmitters with low-gain, non-directional antennas.[40] Such use of directional antennas, the Commission stated, would help reduce the likelihood of a system imbalance in which PCS licensees would deploy base stations that could transmit a strong signal over distances well beyond a mobile unit's capability to respond.[41] Also, the Commission stated that it would not authorize a higher output power limit at that time because "interference could result to fixed microwave operations and/or to other PCS systems in adjacent service areas."[42] As discussed in more detail below, the Commission recently adopted the *Rural Report and Order*,[43] and amended section

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[33] *See* AMTA Comments at 2, CTIA Comments at 3, and Cingular Comments at 3.

[34] AMTA Comments at 2.

[35] *Id.*

[36] *Id.*

[37] Cingular Comments at 3.

[38] 47 C.F.R. § 24.232.

[39] For antenna HAATs higher than 300 meters, the maximum allowable EIRP is lower in accordance with a table in the Part 24 rules. *See* 47 C.F.R. § 24.232, Tables 1 and 2.

[40] *See* Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, *Memorandum Opinion and Order*, 9 FCC Rcd 4957, 5025, ¶¶ 172-73 (1994) (*PCS MO&O*).

[41] *Id.* at 5025, ¶ 173. The Commission later clarified that the power limits contained in Section 24.232 "apply to [] individual components and not to the sum of all components at the entire base station." *See* Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, *Third Memorandum Opinion and Order*, 9 FCC Rcd 6908, 6918, ¶ 62 (1994).

[42] *PCS MO&O*, 9 FCC Rcd 4957, 5025, ¶ 174.

[43] Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural (continued....)

24.232(b), the power rule for broadband PCS, to allow twice as much radiated power (3280 watts EIRP) for use in rural areas, and also increased the base station transmitter output power limit from 100 watts to 200 watts in rural areas.[44] The Commission indicated that increasing power limits in rural areas can benefit consumers in rural areas by reducing the costs of infrastructure and otherwise making the provision of spectrum-based services to rural areas more economic.[45]

14. Powerwave, a manufacturer of Multi-Carrier Power Amplifiers (MCPAs),[46] filed comments in the 2002 biennial review proceeding, prior to the Commission's release of the *Rural Report and Order*, and asserted that the output power limitations contained in rule section 24.232 are overly restrictive.[47] According to Powerwave, as subscriber growth in PCS has increased dramatically since broadband PCS systems were first authorized, the number of carriers (*i.e.*, the individual electrical signals that carry information) used to provide the additional voice channels in a typical cell site has also increased.[48] Powerwave contended that, in order to "provide the same level of service over more carriers at the same distance, it is necessary to increase power."[49] Moreover, Powerwave asserted that the need for higher power levels has also increased because, due to increased local resistance to base station construction, more PCS stations must be collocated with cellular stations and, therefore, are spaced on a cellular design.[50] As a result, PCS licensees, according to Powerwave, are increasingly using MCPAs in their systems. Powerwave contended that the output power limit in section 24.232(a) has the unintended effect of penalizing the use of an MCPA transmitter in the place of multiple individual transmitters because the output power rule limits power on a per transmitter basis rather than on a per carrier basis.[51] As a result, Powerwave proposed that the Commission eliminate the output power restriction entirely, or at the very least, amend Section 24.232 to provide that the output power of each carrier must not exceed 100 watts, instead of each transmitter.[52]

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Telephone Companies to Provide Spectrum-Based Services, WT Docket No. 02-381, 2000 Biennial Regulatory Review Spectrum Aggregation Limits for Commercial Mobile Radio Services, WT Docket No. 01-14, Increasing Flexibility to Promote Access to and the Efficient and Intensive Use of Spectrum and the Widespread Deployment of Wireless Services, and to Facilitate Capital Formation, WT Docket No. 03-202, *Report and Order and Further Notice of Proposed Rulemaking*, 19 FCC Rcd 19078 (2004) (*Rural Report and Order*). The Commission retained the current section 24.232(a) power limits for non-rural stations. 47 C.F.R. §24.232(a).

[44] Rural areas are defined as those counties (or equivalent) with a population density of 100 persons per square mile or less, based upon the most recent available Census data. *Rural Report and Order* at ¶11. A broadband PCS licensee seeking to implement the higher power limits in rural areas is required to coordinate with all PCS licensees located within 75 miles of the licensee's base station transmitter. 47 C.F.R. § 24.232 (b).

[45] *Rural Report and Order*, 19 FCC Rcd 19078, 19126 ¶ 86.

[46] An MCPA is a radio frequency final power amplifier with a wide frequency range. The advantage to using it is that an MCPA is a single piece of equipment that can replace many individual transmitter final amplifiers.

[47] Comments of Powerwave, Inc. filed in WT Docket No. 02-310 on October 18, 2002 (Powerwave Comments).

[48] *Id.* at 1, 10.

[49] *Id.* at 1-2. Cellular base stations are generally separated from each other by a greater distance than PCS base stations because they were originally designed to serve vehicular mobile stations, whereas PCS systems were designed to serve handsets only.

[50] *Id.* at 2.

[51] *Id.* at 2-3, 5-6. For example, five carriers going through one transmitter with an MCPA could have a limit of 100 watts per carrier, equaling a limit of 500 watts for the transmitter.

[52] *Id.*

15. In the *2002 BR Staff Report*, Commission staff generally agreed with Powerwave and concluded that Section 24.232(a) should be modified in order to regulate PCS base station transmissions in a more technologically-neutral manner.[53] Given the case Powerwave presented and subsequent recommendations of staff, the Commission sought comment on whether to relax the output power limitations in Section 24.232(a) by either amending the rule to provide that the output power limit of 100 watts applies on a "per carrier" basis in the case of MCPAs, or to simply eliminate the transmitter output power restriction to allow increased flexibility for PCS licensees in the configuration of their systems.[54]

16. In addition, the Commission asked commenters to address whether or not a radiated power rule can be devised that is technology-neutral, given that the current "per transmitter" rule allows licensees utilizing relatively narrower bandwidth technologies (*e.g.*, GSM) to operate with higher aggregate power across their authorized spectrum than licensees utilizing relative broader bandwidth technologies such as CDMA. The Commission suggested that parties consider other alternatives, including whether or not a power spectral density limit (*i.e.*, power per unit bandwidth) would be more appropriate and thus preferable to a "per-carrier" wording. In response to this latter question, Motorola and Qualcomm argue that the Commission's current rule favors narrowband technologies over wider bandwidth technologies because it is on a "per transmitter" basis, and licensees using narrow bandwidth technologies could operate multiple transmitters resulting in a higher aggregate power per unit bandwidth.[55] According to Motorola and Qualcomm, this places wider bandwidth systems at a competitive disadvantage because they need to deploy additional infrastructure to maintain the same coverage area as narrower bandwidth technologies.[56]

17. Consequently, as a compromise between the narrowband and wideband technologies, Motorola urges the Commission to modify Section 24.232(a) to apply the EIRP limits on a "per MHz" ba for technologies with emission bandwidths exceeding 1 MHz, and on a "per carrier" basis for tec nologies with emission bandwidths less than 1 MHz.[57] Motorola argues that this adjustment would ensure that wideband systems could be deployed on a competitive basis by being able to radiate similar power per unit bandwidth, regardless of the technology utilized.[58] Motorola contends that this proposal, as opposed to applying a universal power spectral density limit (as Qualcomm suggests) is more fair to narrowband operations, because applying a power spectral density universally would in effect impose limits in excess of those currently applicable and could negatively impact current systems and technologies.[59]

18. Finally, CTIA, in *ex parte* submissions, proposes that EIRP limits for PCS licensees be limited to the larger of either: 1) the current rules; or 2) a power spectral density constraint of 3280 watts/MHz average EIRP for non-rural areas and 6560 watts average EIRP/MHz for rural areas.[60] In addition, CTIA proposes that the Commission allow operators to measure power limits on an "average" as

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[53] *2002 BR Staff Report* at 9; *see also 2002 BR Staff Report Appendix* at 67.

[54] We note that there is no output power limit for cellular systems licensed under Part 22.

[55] Motorola Comments at 3. *See also* Qualcomm Comments at 1-3.

[56] Motorola Comments at 3.

[57] *Id.*

[58] *Id.*

[59] *Id.*

[60] *See* CTIA *ex parte* filed October 20, 2004 (CTIA October 20, 2004 *ex parte*) and CTIA *ex parte* filed February 7, 2005 (CTIA February 7, 2005 *ex parte*).

well as "peak" basis, as CTIA claims the term "peak" is subject to interpretation and may lead to confusion.[61] CTIA argues that replacing the term "peak" with the term "average" or by simply removing "peak" (and thereby conform the form of the EIRP/ERP limits in Parts 22 and 24) to permit measurements on either a peak or average basis, without restriction, would remove the uncertainty associated with use of the term peak in the current rules.[62]

19. *Discussion.* After consideration of the record and the general experience with the PCS and other new wireless services, we conclude that the current base station transmitter output power limits should be relaxed to afford more flexibility and achieve harmonization among wireless radio services and competing technologies. The record demonstrates that the transmitter output power limit has had an undesirable effect in hindering the use of MCPAs. MCPAs may be a cost effective way to construct base stations, and we wish to allow licensees flexibility in their use. In view of these conclusions and our policy to eliminate unnecessary, counterproductive or ineffective rules, we are amending Sections 24.232(a)-(b) to eliminate the 100-watt and 200-watt base station transmitter output power limits for urban and rural systems, respectively.[63] As discussed, we believe that the remaining rule that limits maximum EIRP is sufficient to serve our legitimate regulatory purposes for the time being.[64] We note that, in view of our elimination of the broadband PCS base station transmitter output power limit rule, there is no need to address the "per transmitter" vs. "per carrier" aspect with regard to base station transmitter output power.

20. We conclude that the current base station transmitter output power limits have little or no role either in limiting interference or in ensuring that wireless systems are not designed with an excessive imbalance between the forward and reverse links. In light of our action eliminating the output power limit, we need not address Qualcomm's contention that establishing a per carrier limit would invariably cause harmful interference as GSM and TDMA networks could operate base stations at much greater power than CDMA and W-CDMA networks.[65] We believe that interference problems in PCS are largely avoided by voluntary coordination between the licensees of adjacent systems of facilities located in the area near the geographic boundary between those systems, and by licensee compliance with existing EIRP limits. We further believe that the demand for wireless spectrum and resulting cost of obtaining

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[61] *See* CTIA February 7, 2005 *ex parte* at 5.

[62] *Id.*

[63] We note that Motorola requested that any changes made to section 24.232 of our rules be uniformly applied to our Part 27 rules involving power for AWS systems, specifically section 27.50 (d)(1). Motorola Comments at 2-5. While we are amending sections 24.232 (a) and (b) to eliminate the output power restriction for Part 24 broadband PCS systems, the *Notice* did not specifically address the proposed elimination of the output power restriction for AWS systems under Part 27. Accordingly, we believe that this issue would be better addressed in our review of petitions for reconsideration of the *AWS Report and Order*, where the identical form of relief was sought for AWS systems. *See* In the Matter of Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, WT Docket No. 02-353, *Report and Order,* 18 FCC Rcd 25162 (2003) (*AWS Report and Order).*

[64] *See* Ericsson Comments at 3 ("Ericsson urges the Commission to eliminate the transmitter output power limit entirely . . . the limit no longer serves its original purpose"); Lucent Comments at 2 ("a requirement on maximum transmitter power is not necessary to control interference as interference levels are constrained by limits on radiated power or, more directly, by maximum out-of-band energy requirements"); Motorola Comments at 2 (...supports the elimination of the 100-watt transmitter output power limitation in Section 24.232(a)); Powerwave Comments at 6 ("Powerwave had advocated the elimination of output power limits due to confusion over how and where such output should be measured"); and Qualcomm Comments at 9 (...no limit would be preferable to a per carrier limit, which would discriminate against CDMA and WCDMA networks).

[65] Qualcomm Comments at 6.

access to that spectrum provide a strong incentive for licensees to reuse frequencies efficiently within PCS systems. The necessity for efficient re-use ensures that licensees carefully design systems such that the base station transmit range does not exceed the ability of mobile units to communicate back. Excess base transmit range would have a negative impact on frequency re-use and intra-system interference levels. Thus, we believe systems will continue to be properly designed, even without our current output power rule. We also believe that licensees are in the best position to decide what combination of equipment will result in the most efficient provision of service. For example, licensees may wish to utilize higher base station output power with lower gain antennas while operating within our EIRP limits, and we believe it is in the public interest to afford licensees the flexibility to make these types of decisions regarding system design.

21. With respect to the question of spectral power density limits, we decide to maintain for the time being the radiated power limits as recently increased in the *Rural Report and Order*.[66] Given these recent radiated power increases, we conclude that the record developed in response to the *Notice* does not adequately support further EIRP increases. We find that the Commission and industry should be afforded additional time to gain experience with, and assess the effect of, the increased rural radiated power limits and the elimination of Part 24 transmitter output power limits. We also note that the *Notice* was issued in response to comments received in our biennial review process and, with respect to possible EIRP increases, was limited in scope to broadband PCS systems regulated under Part 24 of our rules. Accordingly, the commenting parties largely responded to the *Notice* without knowledge of the Commission's rule changes as ultimately adopted in the *Rural Report and Order*.[67] Moreover, the *Rural Report and Order* addressed rural system EIRP increases across multiple radio services, and was not limited to Part 24 broadband PCS systems.[68] Thus, in keeping with our objective to harmonize our rules across similar services, we believe that the issue of increasing EIRP for broadband PCS licensees must be examined in the larger context of services governed by other rule parts, including cellular licensees under Part 22, and 700 MHz, WCS and Advanced Wireless Services under Part 27.[69] We will explore these issues below in the *Further Notice*.

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[66] Specifically, an urban base station with an antenna with a height above average terrain (HAAT) of 300 meters or less may operate at a maximum of 1640 watts peak EIRP, while a base station of 300 meters or less in a rural area, will be allowed an increase from 1640 to 3280 watts EIRP. We also note that broadband PCS power limits are tied to antenna heights, so that the authorized power for a given broadband PCS base station would vary, depending upon the accompanying antenna height. In the *Rural Report and Order*, we revised Section 24.232 to provide 100 percent power increases in rural areas as a function of antenna height as follows: an increase from 1640 to 3280 watts for antennas of up to 300 meters, an increase from 1070 to 2140 watts for antennas up to 500 meters, an increase from 490 to 980 watts for antennas up to 1,000 meters, an increase from 270 to 540 watts for antennas up to 1500 meters, an increase from 160 to 320 watts for antennas up to 2,000 meters. *See* 47 C.F.R § 24.232.

[67] We note that only CTIA's *ex partes* were filed subsequent to the release of the *Rural Report and Order*.

[68] Part 22 Cellular and Part 27 AWS system power levels were also increased for rural areas.

[69] The recently adopted rules providing 90 megahertz of spectrum for Advanced Wireless Services, including third generation wireless services, provide for licensing under Part 27 of the Commission's Rules. *See* In the Matter of Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems, ET Docket No. 00-258, *Second Report and Order*, 17 FCC Rcd 23193 (2002). In addition, we note that in a more recent NPRM, the Commission is considering whether to license the H block (1915-1920 MHz/1995-2000 MHz; adjacent to broadband PCS) under Part 27 or Part 24. *See* In the Matter of Services Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands, WT Docket No. 04-356; In the Matter of Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, WT Docket No. 02-353, *Notice of Proposed Rulemaking*, 19 FCC Rcd 19263 (2004).

22. Additionally, we note that a new dimension has been raised relative to our examination of our rules to achieve better parity among technologies. Specifically, CTIA has suggested a fundamental shift in how base station transmitter power limits are determined. Rather than simply increasing the permitted peak radiated power, CTIA asks that we change from peak to average power while implementing a power spectral density limit. While we appreciate that several major carriers and equipment manufacturers are in agreement on such an approach, we believe such a change raises a number of issues that need closer examination and for which we have little record. For example, it is not clear what impact changing from a peak power limit to an average power limit may have on services operating in other parts of the spectrum, particularly those in adjacent frequency bands. Because of the significant issues that are raised by the CTIA proposal, and although the proposal has promise, we decline to make any changes to the Commission's current radiated power rules at this time. However, we will consider this below among other issues in the *Further Notice*.

E. Proposed Modifications to Part 90

1. Frequency Coordination

23. *Background*. Section 90.175(j) includes exemptions from the general frequency coordination obligation of Part 90 license applications.[70] Previously, the Commission did not require evidence of frequency coordination to accompany applications for 800 MHz Upper 200 and Lower 80 SMR frequencies.[71] In the 2002 biennial review proceeding, CTIA asked the Commission to expand the exceptions to the frequency coordination requirements to include the 800 MHz General Category frequencies.[72] However, the Commission staff found that "the possible conversion of existing site-by-site licensed general category frequencies to a different mode of operation (*e.g.*, from conventional to trunked use), and the potential shared use environment of the frequencies, makes [wholesale] elimination of the coordination requirement a concern,"[73] and that frequency coordination "remains beneficial in a shared use environment to ensure efficient use and prevent interference."[74] Consequently, the Commission sought comment on whether to eliminate the frequency coordination requirement for incumbent licensees operating on 800 MHz General Category frequencies on a non-shared basis, where such licensees propose new and/or modified facilities that do not expand the applicable interference contour.[75]

24. *Discussion*. In light of the Commission's recent decision to reconfigure the 800 MHz band, we believe this issue is moot (*i.e.*, there is no longer any reason to expand the exceptions to the

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[70] 47 C.F.R. § 90.175(j)(listing applications that do not require evidence of frequency coordination).

[71] 47 C.F.R. § 90.175(j)(8). *See* 47 C.F.R. § 90.175(j)(8) (exempts applications for frequencies listed in the SMR tables contained in Sections 90.617 and 90.619).

[72] CTIA Petition at 26-27. At the time CTIA filed its petition, the General Category frequencies consisted of 150 paired channels (Channel Nos. 1-150) at 806-809.75 MHz /851-854.75 MHz. See 47 C.F.R. § 90.615. Prior to the Commission's amendment of the 800 MHz rules in the *800 MHz Order*, the General Category channels could be used by entities providing CMRS, such as SMRs, and by licensees that used the channels for private internal communications. *See* Improving Public Safety Communications in the 800 MHz Band, Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels, WT Docket 02-55, ET Docket 00-258 and ET Docket 95-18, *Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, 19 FCC Rcd 14969 (2004) (*800 MHz Order*).

[73] *See, e.g., 2002 BR Staff Report Appendix* at 85-86.

[74] *Id.* at 86.

[75] *See id.* at 85.

frequency coordination requirements to include the band 806-809.75/851-854.75 MHz). Specifically, in the *800 MHz Order*,[76] the Commission decided to separate incompatible technologies by moving enhanced specialized mobile radio (ESMR) operations to the upper portion of the 800 MHz band and putting non-ESMR operations in the lower portion of the band.[77] Under this 800 MHz reconfiguration plan, the 806-809 MHz/851-854 MHz segment of the General Category spectrum was reallocated exclusively for site-based public safety operations.[78] The remaining segment of the General Category spectrum, *i.e.* 806-806.75 MHz/809-809.75 MHz, is still designated as General Category spectrum.

25. Although geographic area licensees operating in this segment can remain under certain conditions[79] pursuant to the *800 MHz Order*, it is likely that ESMR systems in this remaining segment of the General Category will relocate to the ESMR portion of the band and the 806-806.75 MHz/809-809.75 MHz segment will be used predominately for site-based systems.[80] For example, on the channels in this segment of the General Category vacated by Nextel, applications for site-based facilities will be accepted, exclusively from public safety entities for the first three years, by public safety and CII entities for the next two years, and thereafter by any entity eligible for use of 800 MHz channels. These site-based facilities, will require frequency coordination in order to avoid interference. Therefore, we decline to adopt the proposal that Section 90.175(j) be amended to exempt applications in the General Category spectrum from frequency coordination.

2. Emission Masks

26. *Background.* Section 90.210 of the Commission's rules describes several emission masks applicable to Part 90 transmitters.[81] In comments in the 2002 biennial review proceeding, Motorola notes that, while the standards imposed by this rule section generally serve the public interest by limiting unwanted emissions outside the authorized bandwidth and thus minimizing adjacent channel interference, Emission Mask G, set forth in Section 90.210(g), limits design flexibility without any corresponding value in improved interference control.[82] Motorola recommended that the Commission conform the Emission Mask G rule to the steps it has taken in recent years in adopting modulation-independent masks (emission masks D, E, and F) that place no limitation on the spectral power density profile within the maximum authorized bandwidth.[83] Commission staff agreed with Motorola in its *2002 BR Staff Report* and recommended that the Commission consider adopting Motorola's request in order to

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[76] *See 800 MHz Order*, 19 FCC Rcd 14969.

[77] *See id.* at 14977, ¶ 11.

[78] *See id.* at 15050, ¶ 151.

[79] *See id.* at 15056, ¶ 162.

[80] *See* 47 C.F.R. § 90.615. *See also* Improving Public Safety Communications in the 800 MHz Band, Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels, WT Docket 02-55, ET Docket 00-258 and ET Docket 95-18, *Supplemental Order and Order on Reconsideration*, 19 FCC Rcd 25120, 25146-48 ¶ 60, ¶ 65 (2004) (*800 MHz Supplemental Order*).

[81] 47 C.F.R. § 90.210.

[82] *Id.* § 90.210(g); *see* Comments of Motorola filed in WT Docket No. 02-310 on October 18, 2002 (Motorola Comments) at 1-2. Motorola notes that Emission Mask G was developed with specific applications in mind and is more restrictive than other masks contained in the Part 90 rules by requiring some attenuation of the emission within the authorized bandwidth. Motorola Comments at 1-2.

[83] *Id.*

potentially enhance design flexibility without diminishing interference protection.[84] The Commission sought comment on the potential benefits to the public of making this change, and whether this proposed revision would, despite Commission intent, potentially increase interference. Also, the Commission tentatively concluded that it should revise Section 90.210(m) of its rules to conform to ITU Regulation S3.10, because it believed this revision will provide greater protection against interference. The Commission sought comment on this tentative conclusion.

27. *Discussion.* We adopt our tentative conclusion to conform the Emission Mask G to a modulation-independent mask that places no limitation on the spectral power density profile within the maximum authorized bandwidth. We also revise Section 90.210(m) of our rules to conform to ITU Regulation S3.10. All of the commenting parties, including CTIA, Motorola and Nextel, support the Commission's emission mask proposal.[85] We agree with the commenters' assertion that elimination of the rule will afford greater flexibility to manufacturers and will conform this emission mask rule with other emission mask provisions applicable to Part 90 services.

3. 800 MHz and 900 MHz Supplemental Information

28. *Background.* Section 90.607 of the Commission's rules describes the supplemental information that must be furnished by applicants for 800 MHz and 900 MHz SMR systems.[86] Under paragraph (a) of this rule, applicants proposing to provide service on a commercial basis in these bands must supply, among other things, a statement of their "planned mode of operation" and a statement certifying that only eligible persons would be provided service on the licensee's base station facility.[87] In comments filed in the 2002 biennial review proceeding, PCIA advocated eliminating Section 90.607(a).[88] Specifically, PCIA stated that the system diagrams that were used when the 800 MHz band was originally conceived have not been used by the Commission for years and are no longer necessary.[89] Moreover, PCIA asserted that the eligibility statement is no longer needed because the eligibility rules for SMR end-users have been eliminated.[90] The Commission, therefore, tentatively concluded that it should delete Section 90.607(a) to eliminate the above-mentioned reporting requirements.[91] The Commission invited comment on this tentative conclusion.

29. *Discussion.* We eliminate Section 90.607(a) from our rules as it is no longer relevant to our regulatory scheme. The supplemental information required under this rule section was previously used in the Commission's analysis of site-based operations in the SMR service and assisted the Commission in determining to what extent single-site facilities were operating as part of a larger network. Further, prior Commission rules required that SMR end-users meet certain eligibility requirements and the Commission relied upon an applicant's separate certification regarding compliance. The Commission

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[84] *2002 BR Staff Report* at 9; see also *2002 BR Staff Report Appendix* at 88. The Commission proposed to revise Section 90.210(g) to eliminate paragraph (g)(1) and renumber the remaining subsections.

[85] *See* CTIA Comments at 3-4, Motorola Comments at 5, and Nextel Comments at 5.

[86] 47 C.F.R. § 90.607.

[87] *Id.* § 90.607(a)(1)-(2).

[88] *See* Reply Comments of PCIA - the Wireless Infrastructure Association filed in WT Docket No. 02-310 on November 4, 2002 (PCIA Reply Comments) at 4.

[89] *Id.*

[90] *Id.*

[91] 47 C.F.R. § 90.607(a)(1)-(2).

has shifted from site-based licensing of SMR channels to geographic-area licensing through competitive bidding, where SMR systems are routinely part of larger, integrated networks consisting of multiple transmitter sites.[92] We therefore find it unnecessary to require applicants to provide a statement of planned mode of operation. We also agree with PCIA that the separate eligibility certification is no longer necessary as the eligibility rules for SMR users have been eliminated.[93] We also believe meaningful competition among the various wireless services has rendered such requirements no longer necessary in the public interest and market forces should encourage applicants to operate their facilities in the proper manner without Commission involvement. All commenting parties, including AMTA, CTIA, Nextel, and PCIA, support the Commission's tentative conclusion stating that "this information has not been required for more than two decades,"[94] and that it "appears to serve no regulatory purpose and is inconsistent with the Commission's policies regarding the flexible use of spectrum."[95]

4. 800 MHz and 900 MHz Trunked Systems Loading, Construction and Authorization Requirements

30. *Background.* Section 90.631 of the Commission's rules contains various requirements for the authorization, construction, and loading of 800 MHz and 900 MHz trunked systems.[96] PCIA and CTIA request that the Commission modify two of these requirements that they assert are no longer necessary. Section 90.631(d) of the Commission's rules allows a licensee of an 800 MHz and 900 MHz SMR trunked system to request an additional five channels than it has constructed without meeting the loading requirements if the licensee operates in a "rural area."[97] The rule defines a "rural area" as either (1) an area which is beyond the 100-mile radius of the designated center of urbanized areas listed in the rule, or (2) an area that has a "waiting list."[98] In comments in the 2002 biennial review proceeding, PCIA noted that waiting lists for 800 MHz and 900 MHz SMR frequencies[99] were eliminated by the Commission in 1995 when the Commission switched to competitive bidding and geographic area licensing.[100] As a result, PCIA requested that the Commission amend Section 90.631(d) to delete the "waiting list" exception to the definition of a rural area.[101] The Commission agreed with PCIA and sought comment on a tentative conclusion to delete this exception to the definition of a rural area. The Commission also sought comment on eliminating other references to waiting lists contained in Section

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[92] *See* Amendment of Part 90 of the Commission's Rules To Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, PR Docket No. 93-144, *First Report and Order, Eighth Report and Order, and Second Further Notice of Proposed Rule Making*, 11 FCC Rcd 1463 (1995) (*800 MHz Upper 200 Channel Order).*

[93] We note that a separate certification regarding compliance with Commission rules is unnecessary because applicants are in fact certifying to compliance with Commission rules through execution of the underlying application.

[94] AMTA Comments at 4.

[95] CTIA Comments at 4-5. *See also* Nextel Comments at 4-5 and PCIA Comments at 4.

[96] 47 C.F.R. § 90.631.

[97] *Id.* § 90.631(d).

[98] *Id.*

[99] Waiting lists were created when the Commission could not process applications for 800 MHz and 900 MHz SMR category channels because of a lack of available frequencies in a particular geographic area.

[100] *See 800 MHz Upper 200 Channel Order*, 11 FCC Rcd 1463, 1501 ¶ 59 ("all applications currently on waiting lists for frequencies that may become available in a geographic area are dismissed").

[101] PCIA Reply Comments at 4.

90.631(d) of the rules.

31. Section 90.631(i) provides that an incumbent (*i.e.*, pre-auction, site-by site authorized) 900 MHz SMR licensee that has not met the loading requirements set forth in Section 90.631(b)[102] at the end of its initial five-year license term will only be granted a renewal period of two years, in which time the licensee must satisfy the loading requirements.[103] CTIA stated that the requirement is obsolete because the "timeframe for site-specific SMR 900 MHz systems to meet the loading requirements has since expired."[104] The Commission agreed that the period of renewing incumbent 900 MHz SMR licenses subject to this requirement has ended. Therefore, the Commission tentatively concluded to eliminate paragraph (i) of Section 90.631 from its rules, as well as references to paragraph (i) in Section 90.631(b) of the rules. The Commission sought comment on this tentative conclusion.

32. *Discussion*. We adopt our tentative conclusions. We agree with all of the commenting parties, including AMTA, CTIA, Nextel, and PCIA, that support the Commission's tentative conclusion on this issue urging the Commission to eliminate both the loading requirement and references to the "waiting list" in Section 90.631(d) of the rules[105] and to eliminate Section 90.631(i), which is no longer necessary since the 900 MHz SMR renewal period it references has long passed.[106] These rules are no longer relevant to our regulatory scheme.

5. 800 MHz and 900 MHz Power and Antenna Height

33. *Background*. Section 90.635 of our rules sets forth the limitations on power and antenna height for 800 MHz and 900 MHz systems.[107] In its comments in the 2002 biennial review proceeding, PCIA asked the Commission to modify or eliminate the restrictions placed on two particular types of 800 MHz and 900 MHz systems – those located in "suburban" areas as defined in the rule and those whose service area requirements are less than 32 kilometers.[108]

34. First, Section 90.635(a)-(c) differentiates between "urban" and "suburban" conventional (*i.e.*, non-trunked) systems, allowing a greater maximum power (1000 watts vs. 500 watts ERP) at a given antenna height above average terrain for urban conventional systems than suburban conventional systems.[109] The 90.635 chart (Table 2) limits maximum radiated power on a sliding scale based upon antenna height above average terrain. For example, urban conventional systems and all trunked systems are permitted to operate with a radiated power of 65 Watts ERP with an antenna height above average terrain of 4500 feet and above to a maximum of 1000 Watts ERP from an antenna height above average terrain of no greater than 1000 feet. In contrast, suburban conventional licensees are limited to a maximum power of 15 Watts ERP with an antenna height above average terrain of 4500 feet and above to

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[102] 47 C.F.R. § 90.631(b) (requiring a minimum of 70 mobiles for each authorized channel to be placed into operation within 5 years of initial license grant).

[103] *Id.* § 90.631(i).

[104] CTIA Petition at 28.

[105] CTIA Comments at 5-6. *See also* AMTA Comments at 4, Nextel Comments at 6, and PCIA Comments at 4-5.

[106] AMTA Comments at 4. *See also* CTIA Comments at 5-6, Nextel Comments at 6, and PCIA Comments at 4-5.

[107] 47 C.F.R. § 90.635.

[108] PCIA Reply Comments at 4-5.

[109] 47 C.F.R. § 90.635 (a)-(c). "Urban" conventional systems are defined as systems located within 24 km. of the geographic center of the 50 urbanized areas detailed in Table 1 to 47 C.F.R. § 90.635. *See id.* § 90.635(a).

a maximum of 500 Watts ERP from an antenna height above average terrain of no greater than 500 feet. PCIA argued that such a distinction "no longer serves a useful purpose and should be eliminated."[110] PCIA justified this conclusion by asserting that suburban systems frequently must cover larger service areas than urban systems, and therefore, a smaller maximum power limit economically restricts the ability of these licensees to serve the suburban areas.[111] Moreover, PCIA asserted that the restrictions on suburban sites also prevent these licensees from counteracting interference from cellular systems to the same extent as urban sites.[112] The Commission sought comment on PCIA's proposal to modify Section 90.635 to remove the distinction between urban and suburban sites when setting the maximum power and antenna height limits for conventional 800 MHz and 900 MHz systems, stating that it believed there is a significant question as to whether the justification for such distinction remains relevant in today's marketplace.

35. Second, PCIA asked the Commission to eliminate the power restrictions on 800 MHz and 900 MHz systems with an operational radius of less than 32 kilometers in radius.[113] PCIA stated that although it "appreciates the Commission's original goal to maximize the number of radio systems that could be accommodated on a single frequency, by limiting the ERP of small footprint systems," the possibility of additional channel use is effectively prohibited by the requirement in Section 90.621(b)(4) that applicants protect all existing stations as if the incumbent system was operating at 1000 watts ERP.[114] PCIA also asserted that the power limitation prevents these smaller systems from limiting interference from cellular systems.[115] Therefore, PCIA requested that the power limitations on 800 MHz and 900 MHz systems with an operational radius below 32 kilometers be eliminated.[116] The Commission sought comment on this proposal and asked that interested parties address the use of such systems in light of the Commission's original goal of increasing the use of single frequencies, and whether lifting of these restrictions will help eliminate interference from cellular systems.

36. *Discussion.* We adopt PCIA's proposal to modify Section 90.635 to remove the distinction between urban and suburban sites when setting the maximum power and antenna height limits for conventional 800 MHz and 900 MHz systems and eliminate power limitations on systems with operational radii of less than 32 kilometers. All of the commenting parties, including AMTA, CTIA, Motorola, NAM/MRFAC, Nextel, and PCIA support the PCIA proposal.[117] We agree with AMTA that several decades of experience have confirmed that there is no bright line distinction between the operational requirements of systems in these two areas.[118] AMTA contends that suburban facilities arguably could require greater power since they might need to cover larger geographic areas than their

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[110] PCIA Reply Comments at 5.

[111] PCIA Reply Comments at 5.

[112] *Id.*

[113] 47 C.F.R. § 90.635(b)-(c) (citing special power/antenna height tables for "service area requirements less than 32 km (20 mi.) in radius").

[114] 47 C.F.R. § 90.621(b)(4).

[115] PCIA Reply Comments at 5.

[116] *Id.*

[117] *See* AMTA Comments, CTIA Comments, Motorola Comments, NAM/MRFAC Comments, Nextel Comments and PCIA Comments.

[118] AMTA Comments at 4-5.

urban counterparts.[119] AMTA argues that this rule is not needed to protect against inter-system interference in these bands and has not proven reflective of the real world operational requirements of operators.[120] In that regard, CTIA contends that under the current rule, an "urban" system operating 24 km from the geographic center of the top 50 urbanized areas could operate with a higher power and antenna height than a system located 25 km from an urban center, which would instead be classified as a "suburban" system.[121] CTIA argues that such a bright-line distinction makes little, if any, sense from an engineering perspective. Furthermore, CTIA argues, the existence of the "urban" versus "suburban" thresholds increases infrastructure and compliance costs, without providing any countervailing public interest benefit.[122]

37. With regard to the reduced power requirements for this type of system, Motorola notes that the reduced power requirements may affect coverage well within the 32-kilometer service border by providing reduced building penetration.[123] However, PCIA argues that such restrictions in today's operating environment should not lead to any allocations of additional spectrum for other licensees.[124] Specifically, PCIA continues, since section 90.621(b)(4) requires that licensees be protected at 1000 watts ERP, even if the station is licensed for less, the reduced ERP for such systems provides no spectrum benefit.[125] PCIA contends that conversely, the reduced ERP makes some operations more difficult for these types of systems. For example, PCIA continues, airlines do not serve a large operational area, but must be able to communicate into the lower reaches of terminal buildings.[126] PCIA contends that the ERP limits of section 90.635 restrict the ability of airlines to serve these areas.[127] PCIA also argues that one of the most effective means of coping with in-band interference is to increase the signal level of the desired signal.[128] In other words, PCIA argues, a private radio or public safety licensee, experiencing interference from an adjacent channel cellular system, should increase the signal level of their system to override the cellular interference.[129] PCIA states that in the context of these systems, constructing an additional transmitter site is an expensive and needless solution.[130] Further, PCIA states that in the context of an airport facility, constructing an additional transmitter site is often not an option.[131] PCIA claims that no licensees would be harmed by the ability of a licensee to utilize increased ERP, and such licensees should have the operational flexibility to utilize an ERP that does not cause interference to co-channel users.[132] We agree.

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[119] *Id.*

[120] *Id.*

[121] CTIA Comments at 6-7.

[122] *Id.*

[123] Motorola Comments at 6-7.

[124] PCIA Comments at 5.

[125] *Id.*

[126] *Id.*

[127] *Id.*

[128] *Id.*

[129] *Id.* at 5-6.

[130] *Id.* at 6.

[131] *Id.*

[132] *Id.*

6. System Authorization Limit in Geographic Areas

38. *Background.* Section 90.653 of the rules states that "[t]here shall be no limit on the number of systems authorized to operate in any one given area except that imposed by allocation limitations."[133] The Commission adopted this rule in 1982 pursuant to its decision to not restrict equipment manufacturers from holding 800 MHz SMR licenses.[134] CTIA asserted that "[t]he rule is redundant and no longer serves any regulatory purpose."[135] Based on the fact that it has licensed and will continue to license 800 and 900 MHz SMR frequencies using competitive bidding for geographic-area authorizations, the Commission agreed with CTIA that this rule is no longer in the public interest. Therefore, the Commission tentatively concluded that Section 90.653 should be removed. The Commission sought comment on this tentative conclusion.

39. *Discussion.* We adopt our tentative conclusion and eliminate Section 90.653 of our rules. We agree with all of the commenting parties, including AMTA, CTIA, and Nextel, that support the Commission's tentative conclusion that rule Section 90.653 is redundant "and no longer serves any regulatory purpose" due to the Commission's general shift to competitive bidding for geographic area licensing in most cases.[136]

7. Reporting Requirement for Trunked SMR Loading Data

40. *Background.* Section 90.658 of the Commission's rules provides that site-based licensees of trunked SMR systems licensed before June 1, 1993 must provide loading data in order to either acquire additional channels or renew their authorizations.[137] Both PCIA and CTIA noted that all SMR licenses issued prior to June 1, 1993 have now been through at least one renewal period and, therefore, advocated minating the rule.[138] The Commission staff found that this provision may be an outdated and rdensome requirement on SMR licensees, especially in light of the competition among cellular, PCS, and 800/900 MHz SMR services. Accordingly, the Commission tentatively concluded that it will eliminate Section 90.658 as no longer necessary in the public interest. The Commission sought comment on this proposal.

41. *Discussion.* We adopt our tentative proposal and eliminate Section 90.658. The Commission previously stated in the *CMRS Third Report and Order*[139] that loading requirements are "one of the mechanisms we employ under our rules to ensure that mobile service licensees make efficient use of spectrum and offer service to customers within their service area."[140] Previously, SMR licensees were required to meet mobile loading requirements to obtain exclusive use of existing channels, obtain

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[133] 47 C.F.R. § 90.653.

[134] Amendment of Part 90 of the Commission's Rules to Release Spectrum in the 806-821/851-866 MHz Bands and to Adopt Rules and Regulations Which Govern Their Use, PR Docket 79-191, *Second Report and Order*, 90 F.C.C.2d 1281 at ¶¶30-32, 223-226 (1982).

[135] CTIA Petition at 28.

[136] CTIA Comments at 7-8. *See also* AMTA Comments at 5 and Nextel Comments at 7.

[137] 47 C.F.R. § 90.658.

[138] CTIA Petition at 27-28; PCIA Reply Comments at 6.

[139] Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, GN Docket No. 93-252, *Third Report and Order*, 9 FCC Rcd 7988 (1994) (*CMRS Third Report and Order*).

[140] *Id.* at 8078 ¶ 185.

additional channels, serve areas within 40 miles of existing channels, and avoid automatic cancellation of authorization for unloaded channels at renewal.[141] However, the Commission eliminated mobile loading requirements for CMRS licensees in the *CMRS Third Report and Order*[142] and we eliminate Section 90.658 consistent with that action. We also note that all of the commenting parties, including CTIA, Nextel and PCIA, support the Commission's tentative conclusion to eliminate 90.658 because competitive market forces among wireless services have replaced the need to closely monitor traffic loading on SMR systems.[143]

8. Grandfathering Provisions for 800 MHz SMR Incumbent Licensees

42. *Background.* In general, section 90.621(b) requires a fixed mileage separation of 113 km (70 miles) between co-channel 800 and 900 MHz systems.[144] However, section 90.621(b)(4) provides that co-channel stations may be separated by less than 113 km (70 miles) by meeting certain transmitter ERP and antenna height criteria, as listed in the Commission's "Short-Spacing Separation Table."[145] Previously, engineering showings were submitted with applications demonstrating that a certain addition or modification would not cause interference to other licensees, even though the stations would be spaced less than 70 mi (113 km) apart. Currently, stations meeting the parameters set forth in the Short-Spacing Separation Table need not submit an engineering analysis demonstrating interference protection to co-channel licensees.[146] Section 90.693 of the Commission's rules requires that 800 MHz incumbent SMR licensees "notify the Commission within 30 days of any changes in technical parameters or additional stations constructed that fall within the short-spacing criteria."[147] It has been standard practice for incumbents to notify the Commission of all changes and additional stations constructed in cases where such stations are in fact located less than the required 70 mile distance separation, and are therefore technically "short-spaced," but are in fact fully compliant with the parameters of the Commission's Short-Spacing Separation Table.

43. *Discussion.* Although we did not propose in the *Notice* to revise section 90.693, we will delete Section 90.693's notification requirement for incumbents wishing to locate stations closer than the minimum distance separation rules allow, but that fall within the parameters of the Short-Spacing Separation Table under Section 90.621 of our rules.[148] Because incumbents are not allowed under the rules to expand their interference contours, this approach will not lead to interference among licensees.

44. Although we eliminate a substantial number of filings to reduce burdens on licensees, we clarify that notification of minor modifications within 30 days will still be required under Section 90.693 in two areas involving short-spaced systems.[149] First, section 90.621(b)(4) allows stations to be licensed

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[141] *Id.*

[142] *Id.* at 8081-82 ¶¶ 190-93.

[143] *See* CTIA Comments at 8, Nextel Comments at 7-8, and PCIA Comments at 6.

[144] 47 C.F.R. § 90.621(b).

[145] 47 C.F.R. § 90.621(b)(4). *See, id.* Short-Spacing Separation Table.

[146] We note that applicants seeking authorization for stations located at distances less than those prescribed in the Short-Spacing Separation Table are required to secure a waiver. *See* 47 C.F.R. § 90.621(b)(4).

[147] 47 C.F.R. § 90.693 (b) and (c).

[148] We note that under the Administrative Procedures Act (APA), the Commission may modify procedural rules such as the notification requirement without notice and comment. See 5 U.S.C. § 553(b).

[149] Additionally, we will not eliminate filings required by provisions such as international agreements, our (continued....)

at distances less than those prescribed in the Short-Spacing Separation Table where applicants "secure a waiver."[150] Second, section 90.621(b)(5) permits stations to be located closer than the required separation, so long as the applicant provides letters of concurrence indicating that the applicant and each co-channel licensee within the specified separation agree to accept any interference resulting from the reduced separation between systems.[151]

9. 220 MHz Phase I Supplemental Progress Reports

45. *Background.* Section 90.737 of the Commission's rules sets forth the supplemental progress reports that 220 MHz Phase I licensees must file with the Commission.[152] The Commission staff recommended that the Commission consider whether certain rules applicable to 220 MHz Phase I licensees continue to be necessary in the public interest in light of increased competition among commercial mobile radio services (CMRS) providers.[153] In particular, staff identified section 90.737 as imposing certain reporting requirements and restrictions on assignments of unconstructed, site-based, 220 MHz Phase I licenses that were intended to prevent speculation and trafficking in licenses awarded by lottery.[154] The Commission tentatively concluded that Section 90.737 should be eliminated as no longer necessary in the public interest given recent competitive and other developments. The Commission sought comment on this tentative conclusion.

46. *Discussion.* We adopt our tentative conclusion to eliminate section 90.737. Licensing by lottery has been eliminated in the 220 MHz Service and a continuation of these reporting requirements may "impede the transferability of 220 MHz spectrum" in a competitive CMRS marketplace.[155] Both commenting parties, AMTA and CTIA support the Commission's tentative conclusion to eliminate section 90.737 because "future 220 MHz licenses will be awarded by auction, not lottery" and the rule is no longer needed to prevent trafficking in unconstructed stations.[156]

F. Corrections and Updates to WRS Rules

47. In the *Notice*, we described a series of administrative changes we proposed to make in this Report and Order.[157] Generally, the changes entail correcting, updating, and eliminating various rules in Parts 1, 22, 24, 27, and 90. We received no comment on any of the proposed administrative changes. Consequently, based on the record before us, we adopt those administrative changes. The specific

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environmental (National Environmental Protection Act (NEPA)) rules, our antenna structure registration rules, or quiet zone notification/filing procedures.

[150] 47 C.F.R. § 90.621(b)(4). Applicants seeking a waiver must submit with their application an interference analysis, based upon any of the generally-accepted terrain-based propagation models, demonstrating that co-channel stations would receive the same or greater interference protection than provided in the Short-Spacing Separation Table.

[151] 47 C.F.R. § 90.621(b)(5). Applicants are required to file such concurrence letters with the Commission.

[152] 47 C.F.R. § 90.737.

[153] *See 2002 BR Staff Report* at 10; *2002 BR Staff Report Appendix* at 108; see also *2000 BR Staff Report Appendix* at 195.

[154] *2002 BR Staff Report Appendix* at 108.

[155] *Id.*

[156] AMTA Comments at 5. *See also* CTIA Comments at 8-9.

[157] *See Notice*, 19 FCC Rcd 708, 722-24 ¶¶ 34-55.

administrative changes are as follows:

- Part 1, subpart F – Title. Correct the term "Wireless Telecommunications Services" to read "Wireless Radio Services."
- Section 1.927(g). Replace the cross-reference to Section 1.948(h)(2) with Section 1.948(i)(2).[158]
- Section 1.939(b). Eliminate the third sentence which states that manually filed petitions to deny can be filed at the Commission's former office location.[159]
- Section 1.955(a)(2). Replace the cross-reference to Section 1.948(c) with Section 1.946(c).
- Section 22.946(b)(2). Replace the reference to Form 489 with Form 601.[160]
- Section 22.946(c). Replace the cross-reference to Section 22.144(b) with Section 1.955.[161]
- Section 22.947(c). Update the location for filing a cellular system information update (SIU) to "Federal Communications Commission, Wireless Telecommunications Bureau, Mobility Division, 445 12th Street, SW, Washington, DC 20554."
- Section 22.948(d). Delete the cross-reference to Section 22.144(a).[162]
- Section 22.949(d). Replace the cross-reference to Section 22.122 with Section 1.927.[163]
- Section 22.953(b). Replace the cross-reference to Section 1.929(h) with Section 1.929(a)-(b).[164]

48. Finally, we also received a request from Motorola to address the station identification rules applicable to 700 MHz public safety licensees.[165] Specifically, Motorola contends that unlike the rules for 800 MHz public safety licensees operating digital transmitting equipment on exclusive channels, the rules do not explicitly provide similarly situated 700 MHz licensees with the ability to transmit their

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[158] When the Commission proposed 47 C.F.R. § 1.927(g), the rule cross-referenced proposed 47 C.F.R. § 1.948(g)(2), which has identical language to the current 47 C.F.R. § 1.948(i)(2). *See* Amendment of Parts 0, 1, 13, 22, 24 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Service, WT Docket No. 98-20, *Notice of Proposed Rulemaking*, 13 FCC Rcd 9672, 9886 (1998).

[159] 47 C.F.R. § 1.939. The second sentence correctly states that manually filed petitions to deny should be submitted to the Office of the Secretary at the Commission's current address. *Id.*

[160] Form 489 was discontinued and replaced with Form 601.

[161] Section 22.144(b) was consolidated with other similar rules into Section 1.955 in the *ULS R&O*.

[162] Section 22.144 was eliminated in the *ULS R&O*.

[163] Section 22.122 was removed and consolidated into Section 1.927 of our rules in the *ULS R&O*. *ULS R&O*, 13 FCC Rcd app. E at 6, app. G at 78.

[164] Section 1.929(h) involves changes to ship station applications. 47 C.F.R. § 1.929(h). Section 1.929(a)-(b) lists changes applicable to all Wireless Radio Service authorizations and lists specific changes to cellular authorizations, respectively. *Id.* § 1.929(a)-(b).

[165] Motorola Comments at 7.

station identification in the digital mode.[166] We note that the Commission recently sought comment on this issue in another proceeding.[167]

IV. FURTHER NOTICE OF PROPOSED RULEMAKING

A. Introduction & Background

49. In the Report and Order *supra*, we revise the broadband PCS transmitting power rule by eliminating the transmitter output power limit portion of that rule. We note, however, that various proposals before us concerning the radiated power portion of the rule (EIRP limits), particularly those introduced into the record by CTIA's recent *ex parte* filing, give rise to practical and technical issues that we believe should be further evaluated and addressed before we act on these proposals. Although it appears that some of these radiated power proposals have considerable merit, especially as applied across various bands or services in a harmonized fashion, we find that a more complete record would assist us in properly analyzing the technical details and specifics needed to craft a clear and workable radiated power rule that is not unduly burdensome. We also see no need to delay implementation of the other streamlining actions taken in the Report and Order while we consider this issue. Therefore, we are splitting off the radiated power issues from the Report and Order and consider them in this Further Notice of Proposed Rule Making. This will allow us to seek a more comprehensive record, and will provide an opportunity to comment for any parties that might wish to address any of the proposals in the CTIA filing and the issues discussed below.

50. Accordingly, in this Further Notice, we ask a number of questions on the details of the CTIA proposals, explained further below, for changes to the broadband PCS radiated power limits.[168] In addition, we consider whether these proposals should be applicable to those Part 22 and Part 27 services that operate under a flexible regulatory framework similar to Part 24 broadband PCS. We also seek comment on possible changes to other technical rules that may be appropriate if we adopt changes to the radiated power rules.

B. The CTIA Proposal

51. CTIA's *ex parte* filing proposes that the Commission revise its PCS radiated power rules to limit average EIRP for broadband PCS stations having an antenna height of up to 300 meters above average terrain to the larger of: (1) 1640 Watts per carrier[169] (3280 Watts in rural areas) which is the

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[166] *Id.*

[167] *See* In the Matter of Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communication Requirements Through the Year 2010, *Fifth Memorandum Opinion and Order, Sixth Report and Order, Sixth Report and Order, and Seventh Notice of Proposed Rulemaking*, WT Docket No. 96-86, 20 FCC Rcd 831, 849 ¶ 41 (2005).

[168] We note that the Commission's radiated power rules are among the core technical rules whose fundamental purpose is to limit the interference potential of wireless systems while still providing sufficient technical flexibility to allow for efficient provision of telecommunications services. The transmitting power rules for broadband PCS are contained in Section 24.232 of the Commission's Rules; for Advanced Wireless Systems (AWS) in Section 27.50(d); and for Cellular systems in Section 22.913. The PCS and AWS rule limits the peak radiated power of base stations, while the older cellular rule simply states that the radiated power must not exceed the stated value.

[169] The current rule expresses the radiated power limit as "per station", but this has been interpreted by the Commission, and is generally understood by the industry, to refer to the radiated power of each individual emission and not to the aggregate radiated power of all of the emissions from a base station. We note that, in common industry jargon, an emission is sometimes referred to as a "carrier" and, in fact, CTIA uses this terminology in its (continued....)

current rule, and (2) 3280 Watts per MHz of emission bandwidth (6560 Watts per MHz of emission bandwidth in rural areas). For stations using an antenna height greater than 300 meters above average terrain, CTIA proposes that the "per MHz" limit be set to 1640 rather than 3280 Watts.[170] We note that the CTIA plan for revision of the radiated power rule comprises three related but independent proposals that we believe can and should be addressed and evaluated individually.[171] First, CTIA proposes to add a power spectral density feature to the current rule. This would allow more radiated power, the specific amount being proportional to emission bandwidth, for stations transmitting emissions with a bandwidth wider than 500 kHz, relative to stations transmitting emissions with a bandwidth less than 500 kHz.[172] Under CTIA's proposal, the narrow emission bandwidth stations would remain subject to the current set radiated power limits, preventing the unintended result of narrowband systems actually having to decrease power.[173] Second, CTIA generally proposes increasing the maximum radiated power for emissions with a bandwidth wider than 500 kHz, notwithstanding the implementation of a spectral density model.[174] Third, CTIA proposes that the radiated power rule be specified in terms of average power rather than peak power.[175] CTIA states that the issue of peak vs. average power is "logically separate" from the power spectral density issue, but believes that it is appropriate to address it because it arises in the "very same sentence in the rules."[176] Finally, CTIA proposes that the Commission ensure regulatory parity for technically like services by mirroring the requested broadband PCS changes in our Part 27 Advanced Wireless Service (AWS) rules.[177]

52. We welcome comment on all aspects of the CTIA proposal. We recognize the effort CTIA has made to reconcile the differing positions filed earlier in the record and to craft a consensus among the parties. CTIA states that its proposal will facilitate deployment of wideband technologies and eliminate disadvantages for certain narrowband technologies, resulting in lower costs for consumers.[178] Because many of the commenting parties support the proposal, we believe that it makes a good starting point for consideration of these issues. Nevertheless, as discussed in detail below, we have some concerns with CTIA's proposal, especially in circumstances where subsequent entrants operating within our rules and their licensed parameters seek to introduce technologies and services that are incompatible

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filing. However, the Commission in this context uses the term "carrier" to mean a fundamental radio frequency wave that is to be modulated by a signal containing the information to be transmitted (hence it "carries" the information). In older, simpler technologies, there was generally only one carrier in an emission (perhaps leading to the industry usage). Today's more complex digital emissions often employ numerous carriers and/or subcarriers. In this FNPRM, we will use the term "per emission" in connection with proposed changes to the radiated power rule, noting that this usage is in agreement with our standing interpretation of the "per station" language of the current rule. By "emission", we mean one radiated RF wave, whether modulated or unmodulated. Multiple antenna radiating elements radiating the same radio wave (*e.g.* a power divider feeding multiple polarizations) would be considered as one emission.

[170] We believe that it is unusual for a broadband PCS base station to employ an antenna site higher than 300 meters above average terrain, except perhaps in mountainous terrain.

[171] We could ultimately decide to adopt some combination of one or two of the proposals and not the other(s).

[172] CTIA February 7, 2005 *ex parte* at 2.

[173] *Id.*

[174] *Id.*

[175] *Id.* at 5.

[176] *Id.*

[177] *Id.* at 2.

[178] *Id.* at 1.

with existing systems. For instance, we question whether the proposal would serve the purpose of balancing the interference potential of various known and future technologies, as well as the relative coverage or performance of wideband versus narrowband systems. We also believe that the CTIA proposal, as outlined, may be unnecessarily complex in some respects, leading to practical difficulties in compliance. We question whether the proposed radiated power limits are comparable to power levels actually used by licensees in their current systems.

53. We seek forward-looking comment to inform us on possible unintended consequences that might flow from the technical aspects of the CTIA proposal, such as the "peak vs. average power" issue. Our radiated power rules are intended to limit the interference potential of wireless systems while still providing technical flexibility to licensees. As a result, substantial changes to our radiated power rules may require consideration of how these changes may affect other related technical interference-limiting rules. Based on these considerations, we raise a number of questions in the following paragraphs about the three aspects of the CTIA proposal. We also suggest some simpler alternatives that might accomplish the same objectives as the CTIA proposal, and we seek comment on those as well.

54. We also seek comment on whether we should extend the relief CTIA's requests to other services. As noted, CTIA specifically requests that the proposed changes be mirrored in the Part 27 rules governing AWS systems. If we adopt any or all of the proposed changes, should we implement them in other services, for example, Part 27 (700 MHz and/or Wireless Communications Services (WCS)), or Part 22 (Cellular)? We recognize that there may be concerns with applying the proposed changes to other services that may be less flexible than broadband PCS, or where there may be possible interference concerns to adjacent spectrum users (*i.e.* Public Safety) or existing incumbent systems (*i.e.* Broadcasters), and therefore we seek comment on whether CTIA's proposed changes should be extended beyond Part 24 broadband PCS. In this regard, we note that Crown Castle International Corp. (Crown Castle) recently filed an *ex parte* in this proceeding.[179] Crown Castle is the sole licensee of a nationwide authorization in the 1670-1675 MHz band with plans to deploy, through its subsidiary Crown Castle Mobile Media, a wide-band terrestrial wireless network to "transmit multiple channels of high-quality, digital video and audio programming to mobile phones and other hand-held devices."[180] Crown Castle supports the CTIA proposal in principle, but also seeks application of the proposal, if implemented, on a proportional basis.[181] We seek comment on application of CTIA's proposal in general to the 1670-1675 MHz band. Moreover, Crown Castle points out that CTIA seeks application of its proposal to Part 24 PCS and Part 27 AWS, *i.e.* bands that were previously afforded relief in the *Rural Report and Order*.[182] In supporting CTIA's proposal, Crown Castle requests that the Commission increase power levels in rural areas for certain bands not afforded relief in the *Rural Report and Order*, specifically the 1670-1675 MHz band, as the "reasoning provided by the Commission for increasing the base station power limits applicable to rural PCS and AWS operations also applies to 1670-75 MHz operations" (*i.e.* allowing expanded rural coverage while using fewer base stations).[183] We seek comment on this issue as well.

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[179] *See* Crown Castle *ex parte* filed May 16, 2005 (Crown Castle *ex parte*).

[180] Crown Castle *ex parte* at 2.

[181] For example, as discussed below, the CTIA proposal seeks certain radiated power increases and application of a spectral density model based upon a starting point of 1640 Watts EIRP (the current non-rural limit for both Part 24 Broadband PCS and Part 27 AWS systems), whereas Crown Castle supports a starting point of 2000 Watts EIRP (the current radiated power limit for the 1670-1675 MHz band) for relevant calculations.

[182] Crown Castle *ex parte* at 2. *See also Rural Report and Order*, 19 FCC Rcd 19078 (Commission afforded 100 % radiated power limit increase in rural areas for Part 22 Cellular, Part 24 Broadband PCS, and Part 27 AWS).

[183] Crown Castle *ex parte* at 2.